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THE MEANING AND MEASUREMENT OF PARTIAL AND DISGUISED UNEMPLOYMENT

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IN A monograph published by the Social Science Research Council in 1947, the present writers devoted a chapter to the differentiation needed among the unemployed and the employed which would enhance the value of labor force statistics as indicators of the state of functioning of the economy.[1] Specifically it was felt that adequate statistics on the labor force and on the employed and unemployed components can come closer to revealing to what extent the economy approaches or departs from a full employment condition than any other statistical measure. Among the differentiations proposed, we outlined the need for separating from the employed those workers who were *inadequately* employed so as to identify and measure the size of the groups with definitely substandard employment. Two subclasses of the inadequately employed were singled out for further differentiation: (1) the underemployed who do not have a sufficient *amount* of work and (2) the employed who get substandard returns per hour of work because of its low productivity (mainly self-employed or unpaid family workers) or because they are employed at substandard wages. It was recognized that substandard wages might be the outward form of low productivity.

For most nonagricultural industries such differentiations can usefully be made in the monthly estimates of the employed which are based on the concept of a current week's activity. In agriculture, particularly for the self-employed, a longer time span, preferably a year's record on time worked and income received, is needed to evaluate the extent of underemployment or to determine the presence or absence of ineffective or unproductive employment.

1. Formulations of the Concept of Underemployment

Underemployment, partial unemployment, and disguised unemployment are various terms used to connote the several manifestations of inadequate employment opportunity or the underutilization of the actual or potential manpower resources. The difficulties of arriving at universally accepted definitions of full employment and of unemployment are well known. Because partial and disguised unemployment

[1] Louis J. Ducoff and Margaret J. Hagood, *Labor Force Definition and Measurement: Recent Experience in the United States*, Social Science Research Council, Bull. 56, 1947.

involve aspects related to considerations of full employment as well as to the nature of unemployment, it is important to review the concepts underlying the various terms used to describe partial and disguised unemployment.

A recent study by the United Nations refers to underemployment as:

> "employment in jobs which occupied only a part of the workers' available time or permit only the partial utilization of their capacities. The latter form of waste of human resources is sometimes called 'concealed' or 'disguised' unemployment, and may be created by any of the conditions which produce total unemployment, including structural maladjustments, cyclical fluctuations, or persistent deficiency of the general demand for labor . . . since the concept of underemployment includes employment which does not permit the workers to make their full potential contribution to the output of the community, full employment requires an occupational distribution of the labor force which is optimal from the standpoint of maximizing per capita output."[2]

This formulation of the concept of underemployment implies an evolutionary or developmental approach, as the optimal distribution and utilization of the labor force is, at any given stage of economic development, not an absolutely attainable goal, but rather an ideal construct indicating the direction in which changes should be sought.

Another writer, in examining the problem of underemployment as it manifests itself in Asia,[3] conceptualizes the problem by distinguishing between visible, disguised, and potential underemployment and treats these types as in fact three different stages in which labor may be released from a given economic sector because of its redundancy without reducing output in that sector. Thus visible underemployment is the excess of manpower available over manpower needed to carry out current production activities under existing methods and capital investment. The disguised unemployment, according to this writer, is the labor time or manpower potential that will be released if only simple changes in methods of production were made without any additional capital investment. Potential underemployment is the manpower that could be released from a given economic sector by a more fundamental change in methods of production, including substantial capital investment.

In a more theoretical treatment of the subject, Bishop conceptualizes

[2] *The Determinants and Consequences of Population Trends*, United Nations, Dept. of Social Affairs, Population Division, Population Studies No. 17, 1953, pp. 249-250.

[3] Chiang Hsieh, "Underemployment in Asia, I. Nature and Extent," *International Labor Review*, June 1952.

the problem of underemployment as follows: "Economic underemployment of labor exists when the real return which owners receive for the use of labor in the particular field of resource use is less than the real return which could be obtained for comparable resource services in other uses."[4] Since this concept is inconsistent with the rationality postulate, Bishop points out that underemployment arises out of (1) imperfect knowledge regarding employment opportunities or (2) barriers to the mobility of labor among uses, or both. Because the barriers to mobility may be of a psychic nature, Bishop is led to restate in the following terms the conditions he considers necessary for the existence of underemployment. "To determine whether labor is underemployed the relevant real income data must be expressed in levels of satisfaction rather than in terms of a particular bundle of goods and services. Underemployment of labor exists when the level of utility available to resource owners as a consequence of employing their labor in a particular use is less than the level of utility available to them by employment of labor in alternative uses."[5]

Even this limited review of efforts to conceptualize the problem of underemployment or partial unemployment suggests the complexity of devising operational definitions and measurement techniques. Nevertheless, the concept of underemployment has received increasing attention from two major directions in recent years. Problems of economic development with respect to underdeveloped countries have highlighted underemployment and ineffective employment as of greater importance than unemployment, as that concept is measured in industrialized countries. In more highly developed countries, the emphasis on the goal of full employment and progressively rising productivity and levels of living has increased efforts to identify groups, other than the totally unemployed, whose employment is inadequate because it is insufficient in amount, or below standard in productivity and returns, or both.

The concepts of underemployment and inadequate employment imply some standard or norm of employment which is not being met. If underemployment is to be measured, the standards must be explicitly formulated. These may vary with different cultures so that the measurement problem may have to be approached in different ways. Even within one country, the identification and measurement of underemployment may require different techniques for different groups of workers. The remainder of this paper is concerned chiefly with an exploration of these problems in the United States, and especially in the agricultural sector of the economy.

[4] Charles E. Bishop, "Underemployment of Labor in Southeastern Agriculture," *Journal of Farm Economics*, May 1954.

[5] *Ibid.*, p. 260.

2. *Underemployment in the United States*

Even though the United States economy has operated at relatively high levels in the last fifteen years, there has admittedly been less than "full" employment even when the number of totally unemployed was quite low. To approach the measurement of this departure empirically there have been proposals, particularly from organized labor groups, to recognize explicitly partial employment, or conversely partial unemployment, as a category in the current statistical series on the labor force. In such a formulation the partially unemployed would include (1) persons who worked part time during the survey week because of economic factors but who usually work full time and (2) persons who usually work part time but who prefer and would accept full-time work.

For most nonagricultural employees, labor force surveys could obtain information on time worked and wages earned in a current week, which, with supplementary questions on reasons for not working "full" weeks, would provide a basis for identifying underemployment or unremunerative employment. At present, the Census Bureau obtains data each month on time worked during the survey week and, at irregular intervals, on reasons for not working full weeks. These provide reasonably satisfactory data for identifying various groups of underemployed from the criterion of time worked. For the self-employed, however, and particularly for farm operators, the approach on the basis of a current week's activity and earnings is not satisfactory for identifying the inadequately employed.

In the United States, agriculture is a sector of the economy in which underemployment has been persistent and difficult to measure. The seasonal nature of most agricultural enterprises means that neither the labor input nor the money returns are spread evenly throughout the year. There may be practically no activity during certain weeks or months and very long working hours during other parts of the year. For example, on many one-crop farms, and especially on small cotton farms in the South, there may be practically no activity during the winter and again during the period between the last cultivation operations and the beginning of the harvest. Therefore, the information on time worked during a specific week does not have the same economic significance in the case of the farmer as it does in the case of the factory worker.

Also important, in addition to the insufficient hours worked by many underemployed farm operators, is the problem of substandard returns per hour of work because of low productivity. In some types of available data, it is often not possible to dissociate the factors of an insuf-

ficient amount of employment and the low returns per hour. Since the product of these two is measurable in the case of self-employed farm operators by annual income, most research workers in this field have used annual income as a criterion and designated as "underemployed" farm operators with annual incomes less than some specified amount, regardless of whether the low income resulted from an insufficient amount of work or substandard returns per hour of labor, or both. Thus, special tabulations from the 1950 Census of Agriculture show there were 1,622,000 farm-operator families with heads between the ages of twenty-five and sixty-five which had total family incomes of less than $2,000.[6] We have no information on the annual input of labor by these families, but it is believed that they averaged considerably less than full years of work and that the returns per hour averaged lower than the statutory minimum for most nonagricultural wage workers. Data on their land, machinery, livestock, etc., indicate that insufficient physical and capital resources were available for adequate employment of the manpower. From the standpoint of the agricultural sector of the United States economy, the problem of underemployment is mainly one of redundant or surplus manpower on the less productive farms. The levels of agricultural production achieved by the more productive sector of agriculture can adequately meet the existing domestic and export demands, including reasonable reserves of food and fiber.

Evidence of the redundance of manpower on farms at the beginning of World War II is the extensive out-migration of farm people to nonfarm areas that occurred in the United States. Despite the substantial decline in number of farm workers and man-hours of farm labor input, total farm output in this decade increased by 20 per cent, while output per man-hour rose 62 per cent. The net migration from farms in this decade amounted to over 8½ million persons ten years of age and over, about evenly divided as between males and females. Sixty-one per cent of the males who migrated were between fifteen and fifty-nine years of age in 1940 and 33 per cent were under fifteen. The corresponding distribution of the female migrants was 54 and 40 per cent respectively (Table 1). Differentials in the rates of migration occurred as between different regions of the United States and different groups in the farm population. For example, the rate of out-migration from the South was greater than for the United States as a whole, reflecting the substantially greater out-migration of the nonwhite than of the white farm population in the South.

[6] *Long Range Farm Programs*, Technical Studies by the Dept. of Agriculture Relating to Selected Farm Price Support Proposals for the House of Representatives, Committee on Agriculture, 83d Cong., 2d sess., 1954, p. 160.

TABLE 1

Estimates of Net Migration from the Rural-Farm Population, 1940-1950

(*number in thousands*)

AREA AND AGE GROUP		TOTAL		MALE		FEMALE	
		Number	*Per Cent*	*Number*	*Per Cent*	*Number*	*Per Cent*
United States—all ages[a]		8,610	100.0	4,269	100.0	4,341	100.0
Age in 1940	*Age in 1950*						
Under 15	10-24	3,139	36.5	1,411	33.0	1,728	39.8
15-59	25-69	4,952	57.5	2,607	61.1	2,345	54.0
60 and over	70 and over	519	6.0	251	5.9	268	6.2
Rate of net migration:[b]							
United States			30.9		29.6		32.3
South			36.1		34.9		37.4
White			33.8		32.4		35.2
Nonwhite			42.4		41.7		43.1

[a] Net migration of persons from the rural-farm population between 1940 and 1950. Estimates relate to persons alive in both 1940 and 1950 and do not include estimates of migration of those born or dying during the decade.

[b] Net migration expressed as a percentage of the expected survivors to 1950 of persons living on rural farms in 1940.

Source: Dept. of Agriculture, Agricultural Marketing Service.

Information is not available by which to analyze in detail the full range of factors underlying this extensive population shift. Thus, for example, it would be revealing if information were available to show the areas to which the migration took place and the volume of such migration to each of the receiving areas. Much could be learned as to the causes and motivations for the migration if information were available on the particular economic circumstances of the individuals and families involved in the migration at the time that they left their farm communities. However, much of this migration was from low income or low production farms of people who were underemployed and who would have migrated earlier had employment opportunities existed. They were in large part people whose migration had been dammed up by the depressed economic conditions of the 1930 to 1940 decade. They responded rapidly to the employment opportunities that were created during the war and postwar years of prosperity in the next decade. Thus the swings of the economic cycle play an important role in determining the magnitude of the rural underemployment problem.

3. *Measurement of Underemployment*

Various approaches to identification of the underemployed by measurement of time worked during the entire year have been made in population censuses, in national sample surveys, and in special surveys

in areas of rural underemployment. In the 1950 population census, a single question was asked (of a 20 per cent sample) on the number of weeks worked in 1949. Tabulations of the results by residence indicate a slightly higher prevalence of underemployment among rural-nonfarm than among urban or rural-farm workers. Among males who worked at some time during the year, the proportion who worked 40 or more weeks was 79.7 per cent for urban, 72.6 per cent for rural-nonfarm, and 79.4 per cent for rural-farm. Tabulations by industry from the decennial censuses and from current surveys for later years show that the high proportion among the rural-farm population is due largely to the high proportion of farmers reporting fifty weeks or more of work. For example, in 1953, the proportion of self-employed workers in agriculture reporting full-time year-round employment was 74.9 per cent, in contrast with 34.9 per cent for farm wage workers and 60.7 per cent for all in nonagricultural industries.[7]

The results seem to suggest fuller employment during the year for self-employed farmers than for a majority of nonagricultural occupations. There may be two types of inadequacies in this approach to the problem. One is the questionable value of the response to a single question to farm operators on the number of weeks they worked during the year. The other is the lack of information to cross-classify the amount of work performed with the value of the production achieved. In view of the known differences in efficiencies of time input and methods of production among farm operators in different economic size classes (which range from agricultural methods of past generations to modern-day scientific and mechanized farming), the inability to evaluate the time input by the product achieved severely limits interpretation of the data on "weeks worked."

The reality of the problem of underemployment in agriculture, however, can be perceived even through this barrier by noting results from a few studies in areas of concentration of low-income farm families.

4. Special Studies of Rural Underemployment

Two recent studies made cooperatively by the Department of Agriculture and the agricultural experiment stations of Kentucky and Oklahoma attempted a more refined approach to measurement of time input on an annual basis.[8] Interview sample surveys were made of

[7] "Work Experience of the Labor Force in 1953," Current Population Reports, Bureau of the Census, Series P-50, No. 54, August 4, 1954.

[8] Robert E. Galloway and Howard W. Beers, *Utilization of Rural Manpower in Kentucky*, Kentucky Agricultural Experiment Station and Bureau of Agricultural Economics, January 1953. James D. Tarver, *A Study of Rural Manpower in Southeastern Oklahoma*, Oklahoma Agricultural Experiment Station and Agricultural Marketing Service, September 1955.

the open-country households in economic area 8 in eastern Kentucky and economic area 9 in southeastern Oklahoma, both of which were areas of known low income and levels of living. In these studies, intensive questioning was made to ascertain as accurately as possible the work record during the year of all persons fourteen years of age and over in the open-country households. About twenty questions were used to get for each individual the information for the various seasons and types of work; the data were then converted into eight-hour days.

The results obtained are in several ways not exactly comparable with those obtained in the 1950 census, but even so the prevalence of greater-than-average underemployment is indicated. In Kentucky, of the rural-farm males fourteen years of age and over who were employed during the year ending March 1, 1952, only 66 per cent had 180 or more full-time days of work. This is substantially below the census figure already cited for rural-farm males in the United States in 1949—79 per cent reported forty weeks or more of work. In Oklahoma, 65 per cent reported 180 or more days.

The intermittent and seasonal character of the employment of hired farm workers and unpaid family workers is well known. Of a total hired farm work force of some 3 million individuals in 1952, only about 1 million had farm work as their chief activity during the year, averaging 212 days of work (including fifteen days of nonfarm work).[9] An additional 250,000 had nonfarm work as their chief activity, averaging 216 days of work. The remainder were chiefly housewives, school youths, and others who work on farms for only short periods. A similar picture is presented for 1953 for hired farm workers and unpaid family workers by the Current Population Surveys. Only 7.3 per cent of the unpaid family workers in agriculture and 34.9 per cent of the wage workers were full-time, year-round workers.[10]

To assess the problem of underemployment in a realistic way, it is necessary to consider the availability of underemployed workers for alternative opportunities, as well as the current stage of the business cycle in affording such opportunities. The pilot studies, made in cooperation with state and federal agencies, explored the availability of presumed underemployed workers in areas of low farm income, in areas which include the possibly underemployed seasonal hired farm workers, and in areas which depend mainly on migratory workers, whether imported or foreign.

The net result of these studies is not too positive in getting a measure of how many of these workers were really available for addi-

[9] Louis J. Ducoff, *The Hired Farm Working Force of 1952*, Bureau of Agricultural Economics, October 1953.

[10] "Work Experience of the Labor Force in 1953."

tional or more productive work. In relatively isolated areas of eastern Kentucky and southeastern Oklahoma, the respondents surveyed indicated a very low degree of availability of workers in open-country rural families for out-of-area employment. Only 14 per cent of the family heads surveyed in Kentucky and 4 per cent in Oklahoma said they would be willing to move to another location to take a year-round nonfarm job. This stands in sharp contrast to the actual record of migration from farms during the 1940-1950 decade. The farm population of the areas surveyed had net losses through migration equal to nearly 40 per cent of the farm population at the beginning of the decade for the Kentucky area and 45 per cent for the Oklahoma area. Age and possibly other types of selectivity in this high rate of migration during 1940-1950 may have left a less potentially mobile population remaining in the area. However, questions on availability are not always very meaningful or realistic in research projects of this type when the interviewer cannot offer to the interviewee anything in the way of a concrete job.

In contrast, much larger proportions of the persons surveyed deemed to be underemployed by arbitrary criteria expressed interest in additional employment in nonagricultural work within their own localities. Demographers, economists, and sociologists have for years advised that more new industry should be located in areas of rural underemployment. They have supplied maps and tables to highlight such recommendations, with little effect except when the industry, such as atomic energy and related plants, requires a vast expanse of space.

The special survey on availability revealed that the vast majority of the currently underemployed in the areas studied had little access to information on alternative opportunities. In March 1952, only about a fourth of the farm-family heads in the Kentucky area had heard of any farm or nonfarm jobs being available during the nearly two years after the outbreak of hostilities in Korea and the marked expansion in employment in defense industries.

5. *Implications*

The identification of partial and disguised unemployment is significant in any type of economy under any national employment conditions. In the United States, where the general levels of productivity and living standards are high, the existence of a substantial amount of underemployment in some sectors of the economy stands in contrast to the accepted norms and evokes inquiry as to what can be done about it. During the depression years of the 1930's, the identification and measurement of the unemployed and the underemployed led to various programs for temporary amelioration, but the lack of employ-

ment opportunity limited severely the transfer on a fairly permanent basis of the underutilized rural manpower to adequate and productive employment.

During World War II and the succeeding postwar years of prosperity, the problem shifted from a buyers' market to a sellers' market for labor. A tremendous relocation of manpower resources was the result. Net migration from the rural-farm population amounted to about 9 million during the decade of the 1940's, and most of this occurred without direction or assistance from governmental agencies. Voluntary mobility is a coveted feature of our American democratic economy, and underemployment of farm people was greatly reduced by the response of unemployed or inadequately employed farm workers to better employment opportunities in other jobs and locations.

Even under such favorable conditions for transfer of labor to more productive employment, the United States is still faced with a considerable surplus of inadequately employed workers, especially in nonindustrialized rural areas. The problems are accentuated in areas of low-income farms and areas in which mechanization is rapidly diminishing farm labor requirements. The areas are generally those in which the high level of birth rates in recent decades result in a higher rate of replacement of working adults than can be offset by deaths, retirements, or older men moving out of agricultural occupations.

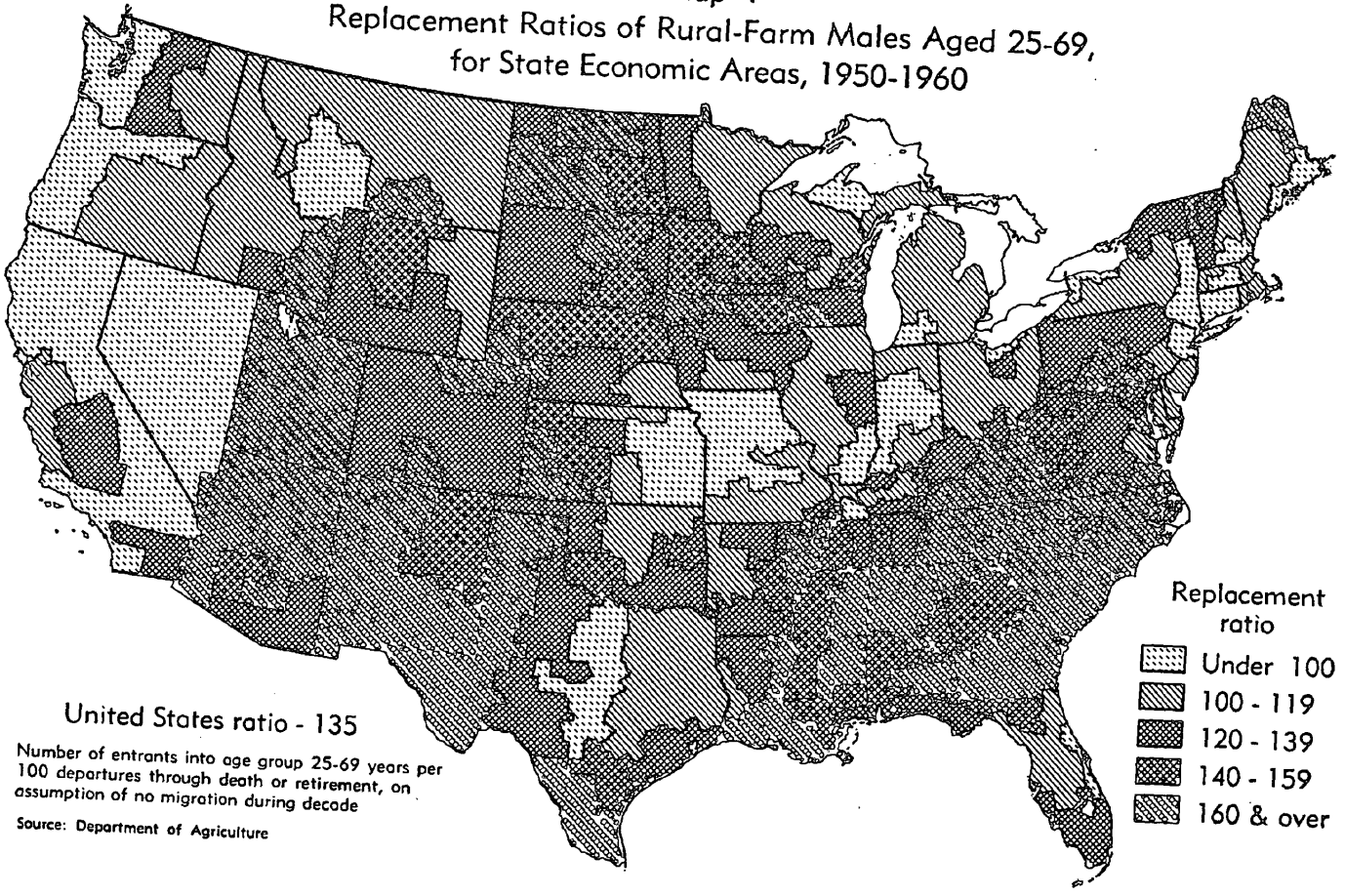
Replacement ratios for rural-farm males of working age during the 1950-1960 decade are shown for state economic areas of the United States in Map 1.[11] The ratio indicates the number of young men who will be entering the working age for every 100 older men who will die or retire. The state economic areas of greatest potential population pressure during the next decade are largely in the southern Appalachian Mountains and interior plateaus, the South Atlantic coastal plain, a large contiguous area running from the southern high plains westward to the Colorado River and northward from there to southern Idaho, and portions of the Great Plains of the Dakotas. Many counties in these economic areas have replacement ratios of more than 200, indicating that more than twice as many young men as needed for replacement will reach working age in the farm population during the current decade. However, the replacement ratio has been substantially reduced in the last decade; for the United States as a whole it fell from 167 in the 1940-1950 decade to 135 for the present decade.

To date, the chief force operating to reduce underemployment has been sustained high levels of national employment and income which

[11] Gladys K. Bowles and Conrad Taeuber, *Replacement Rates for Rural-Farm Males of Working Age, 1950-60,* Agricultural Marketing Service and Bureau of the Census, 1956.

Map 1

Replacement Ratios of Rural-Farm Males Aged 25-69, for State Economic Areas, 1950-1960



United States ratio - 135

Number of entrants into age group 25-69 years per 100 departures through death or retirement, on assumption of no migration during decade

Source: Department of Agriculture

induce voluntary migration and shifts to more productive employment, rather than specific programs for areas of concentration of underemployment. However, there are still areas of concentration of underemployment, especially among low-income farm families. These areas, because of isolation and other factors, still have reserves of underutilized and ineffectively utilized manpower. In these same areas generally, farm youth are reaching working age in much larger numbers than are required for replacement needs. There is increasing public concern over the need for developing programs for vocational training of youths in nonfarm occupations, and for provision of retraining and nonfarm employment information for many adults. Development of programs by federal, state, and local agencies is impeded by lack of adequate statistics on the numbers, location, and characteristics of the underemployed, and especially on their availability and capacities for transfer into more productive employment. The problems of measurement have by no means been solved and research efforts must be intensified to develop better measures of partial employment and of underutilization of manpower resources.